



Panel 1:
***Requirements Generation for Total
Battlespace Awareness***

JAWS 99

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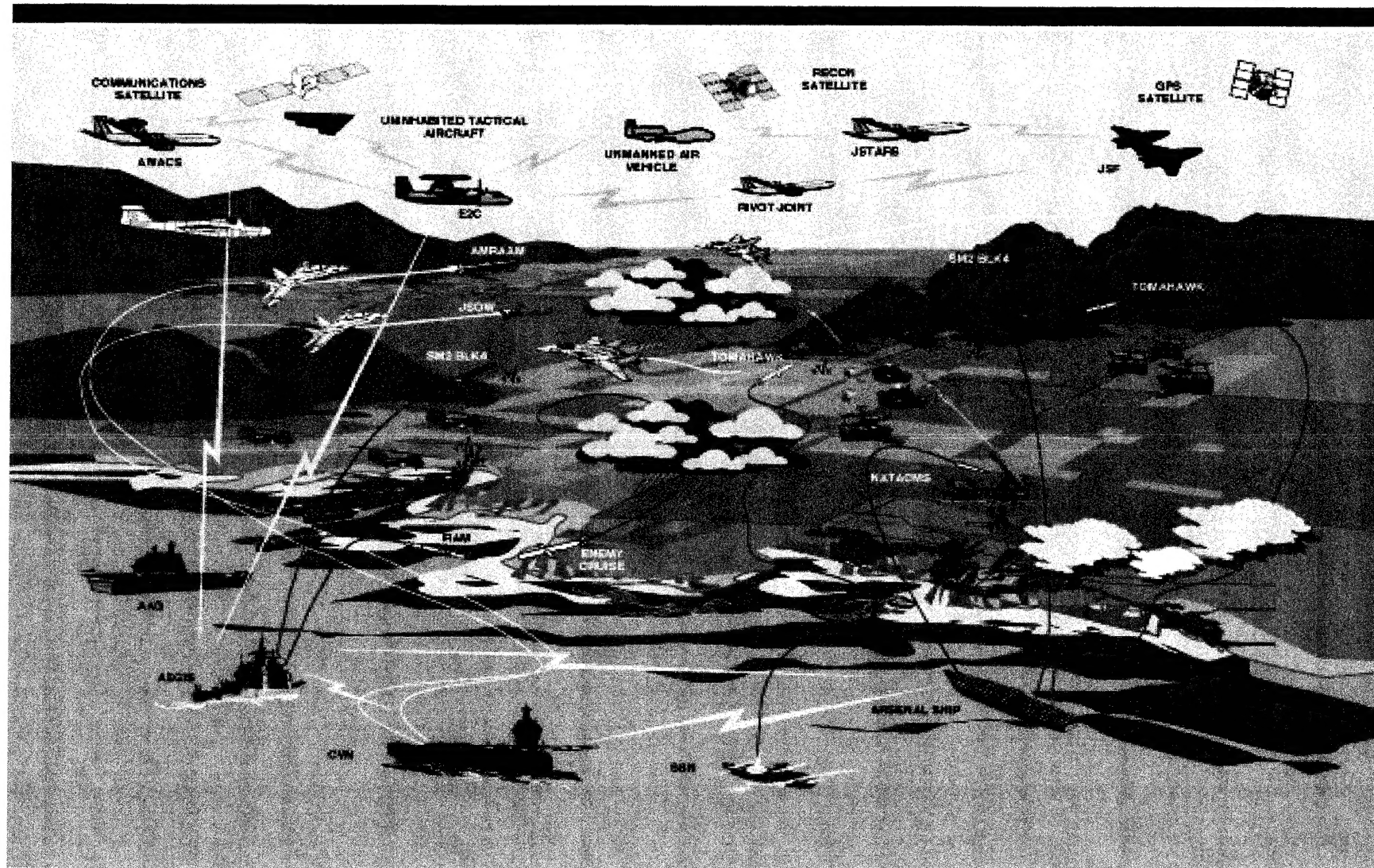
Requirements Generation



- Know the environment.
- Know your adversary.
- Know your strengths.
- Know your weaknesses.
- Your strengths and weaknesses, arrayed against your adversary's strengths and weaknesses, should reveal your requirements.

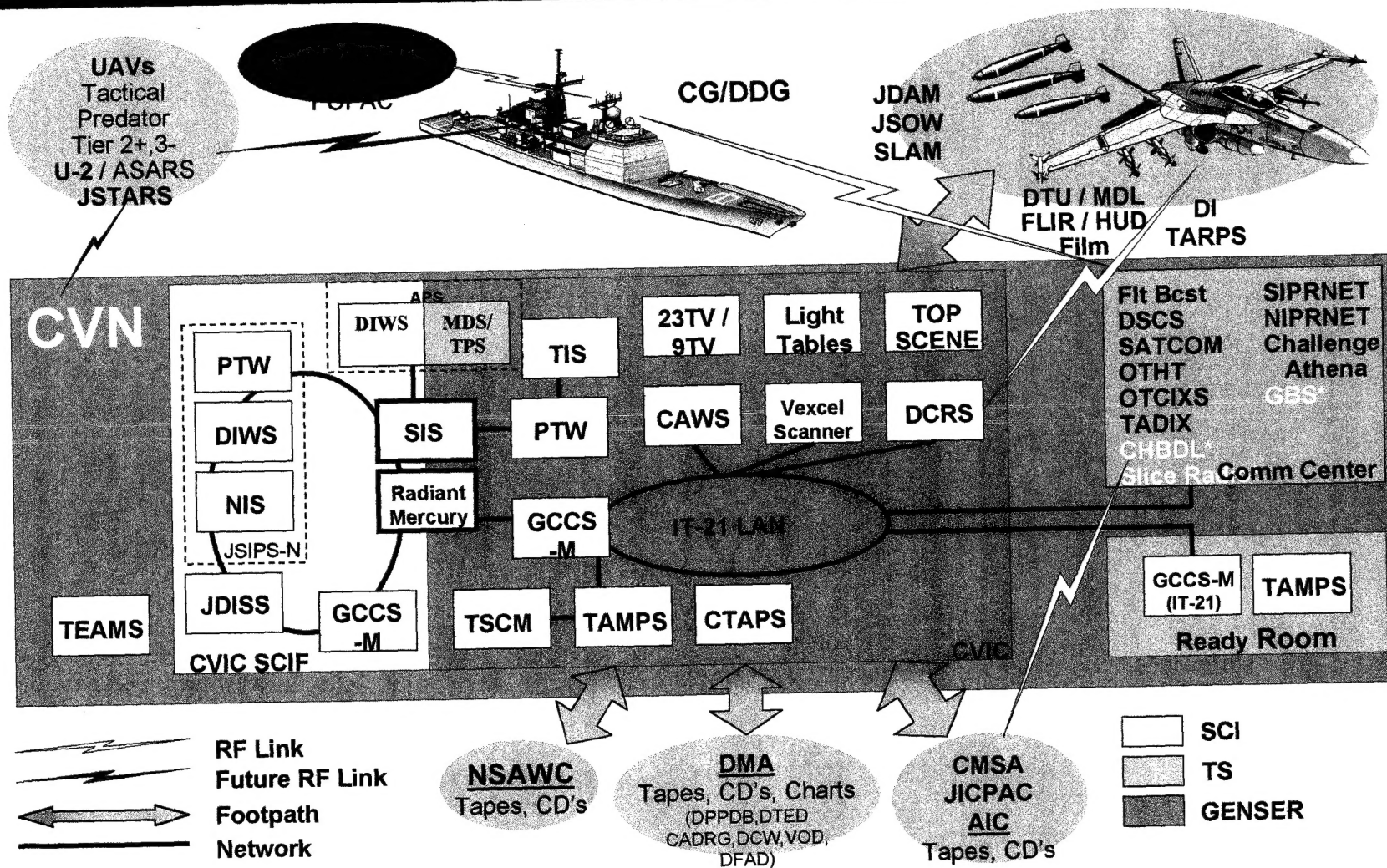
"Know the enemy and know yourself; in a hundred battles you will never peril. When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. If ignorant both of your enemy and of yourself, you are certain in every battle to be in peril."

Sun Tzu, The Art of War, Sixth Century B.C.





Current CVIC





Emerging Operational Concepts



Emerging Operational Concepts

Information Superiority

Technological
Innovations

Dominant Maneuver

Precision Engagement

Coalition Partners

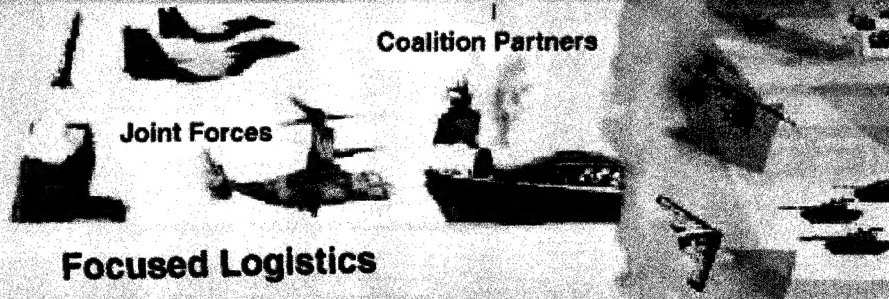
Joint Forces

Focused Logistics

Full-Dimensional Protection

Massed

Effects





Operational Warfare Drivers



Aircraft



**Single seat, multi-mission, smart/
programmable**

Weapons



Guided, standoff, autonomous

**Force
Structure**



Fewer platforms, people, weapons

Threat



Lethal, mobile, electronically agile

**Operational
Concepts**

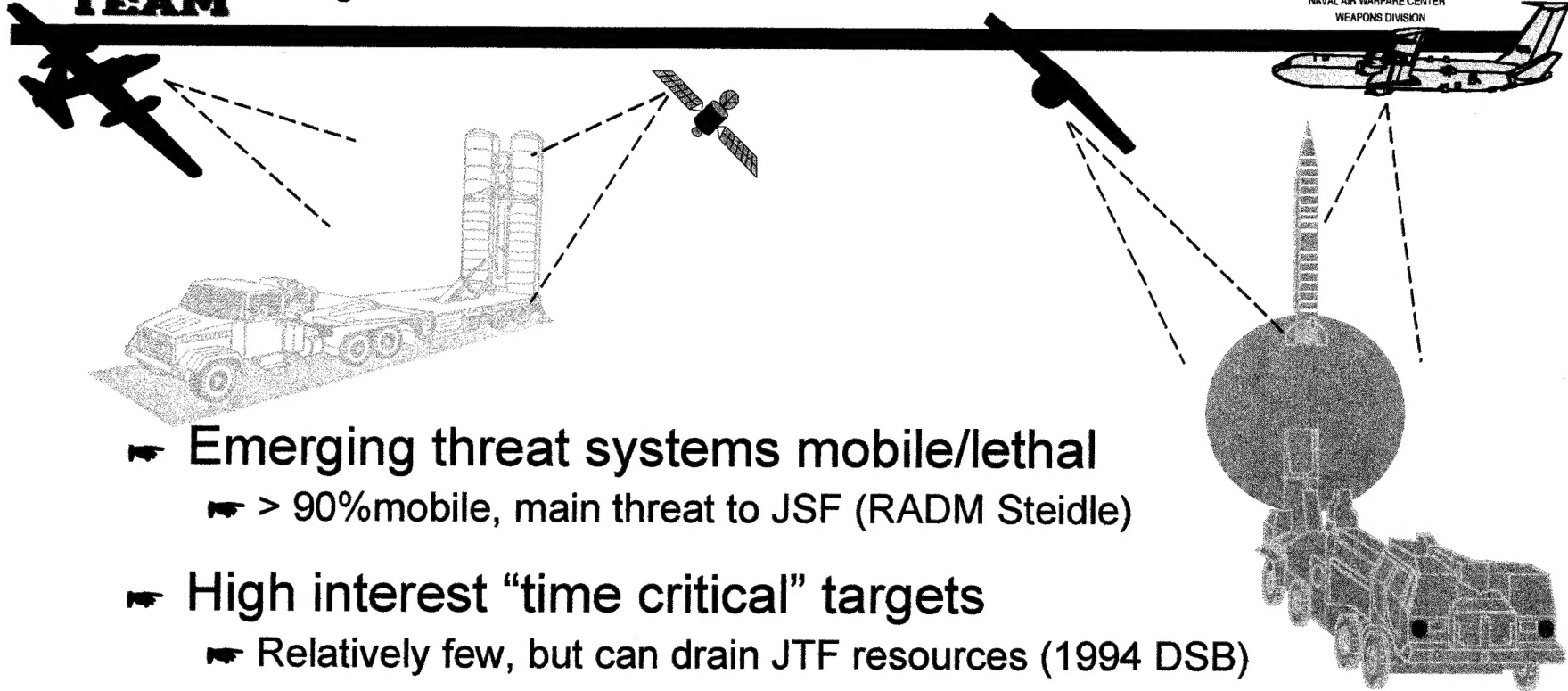


Enable rapid, decisive, low loss victory

**Improved planning methods and tools required to meet
high information demands of modern strike warfare**



Dynamic Mission Environment



- Emerging threat systems mobile/lethal
 - > 90% mobile, main threat to JSF (RADM Steidle)
- High interest "time critical" targets
 - Relatively few, but can drain JTF resources (1994 DSB)
- Battlefield changes dramatically within traditional planning & execution timelines

Mission planning is the pacing function in joint precision interdiction timeliness (1994 DSB)



Network Centric Warfare Brave New World



- Warfare which derives its power from the robust networking of a well informed but geographically dispersed force, enabled by:
 - Highly webbed information services
 - Timely access to all relevant and appropriate information sources
 - Value-added, automated command and control processes (to include high speed automated assignment of resources to need)
 - Integrated sensors hosted on the information network and closely coupled in time to the shooters and command and control processes
 - Weapons reach with precision and speed of response

Source: VADM Gebrowski, President, Naval War College, October 1998

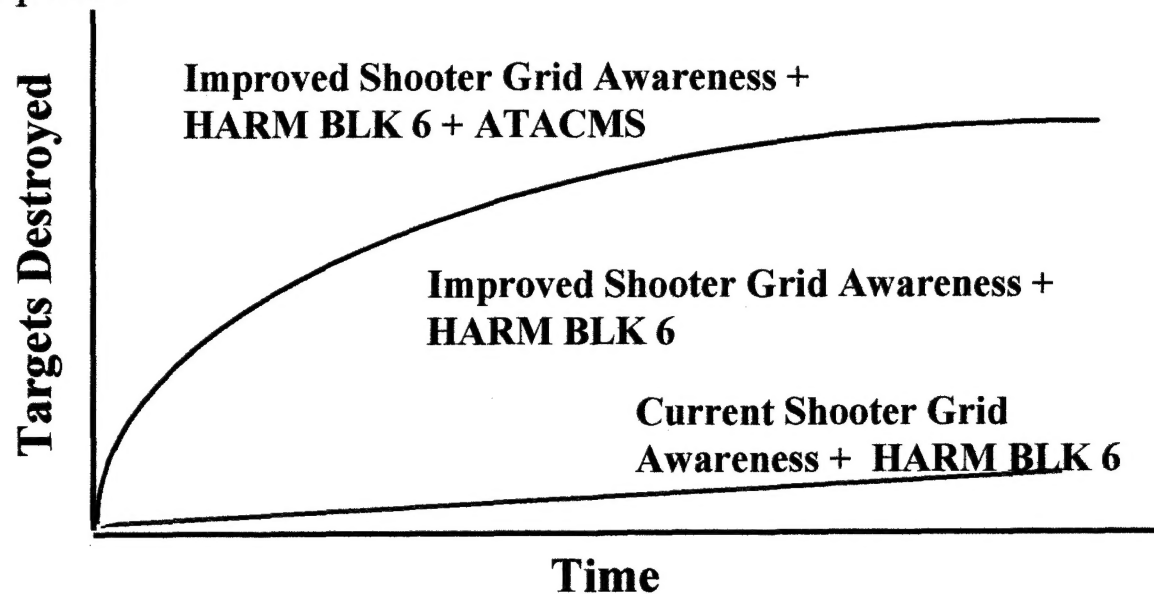


Network Centric Warfare Increases Joint Combat Power



Results for Precision Engagement

- **Operational Impact**
 - Dramatic Early Results
 - Greatest Rates of Change in Initial Phase of a Campaign
 - Inflicts Maximum Losses on the Enemy
 - Shortens Timelines
 - Locks out Enemy Options





Network Centric Warfare Integrated Planning & Execution



Time-critical-target/mobile
SAM targeting data linked to
Afloat AOC



National sensor updates mission
planning threat data base/cues
JSTARS via TRAP

UAV passes time-critical-
target location to JSTARS



Mobile SAM engaged
using JSTARS
targeting

JFACC Afloat real-time tactical picture
enables sensor-to-shooter retasking &
situational awareness updates

Mission plan update, JSOW
targeting data, threat avoidance
routing relayed to TACAIR

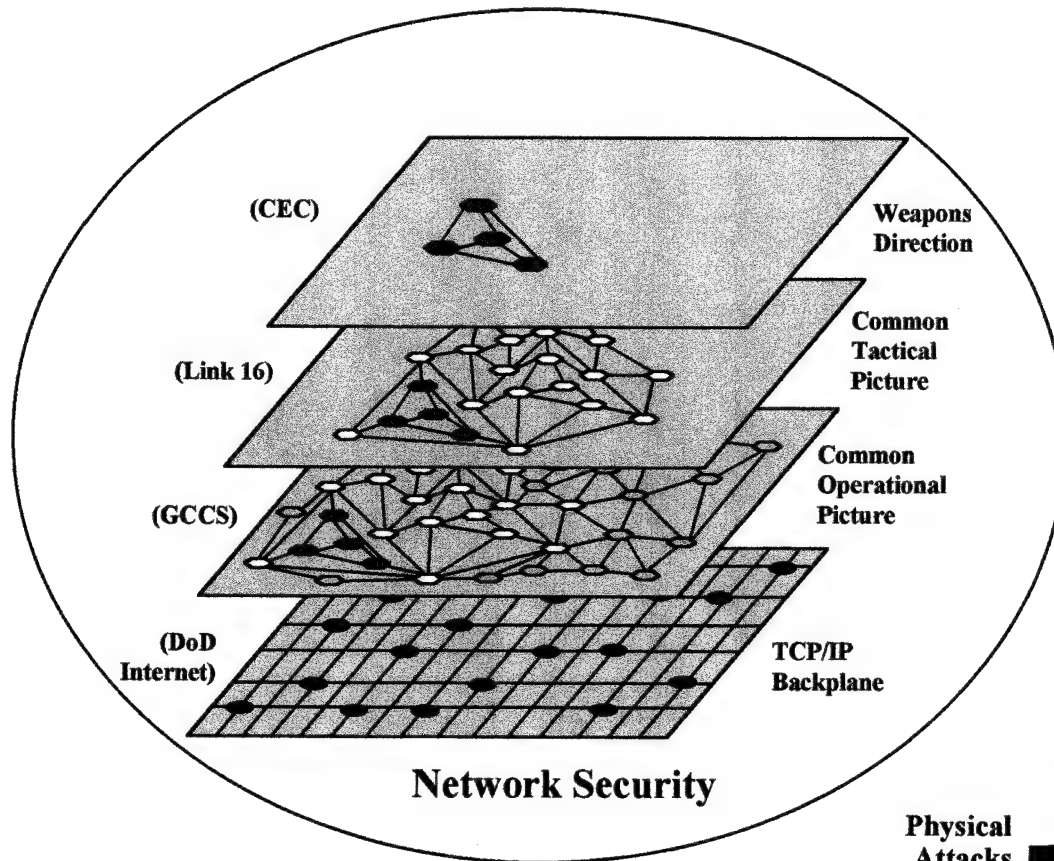
**Time-critical-targets/advanced mobile threats demand
integration of theater sensor data into real-time battle
management and mission plan updates**



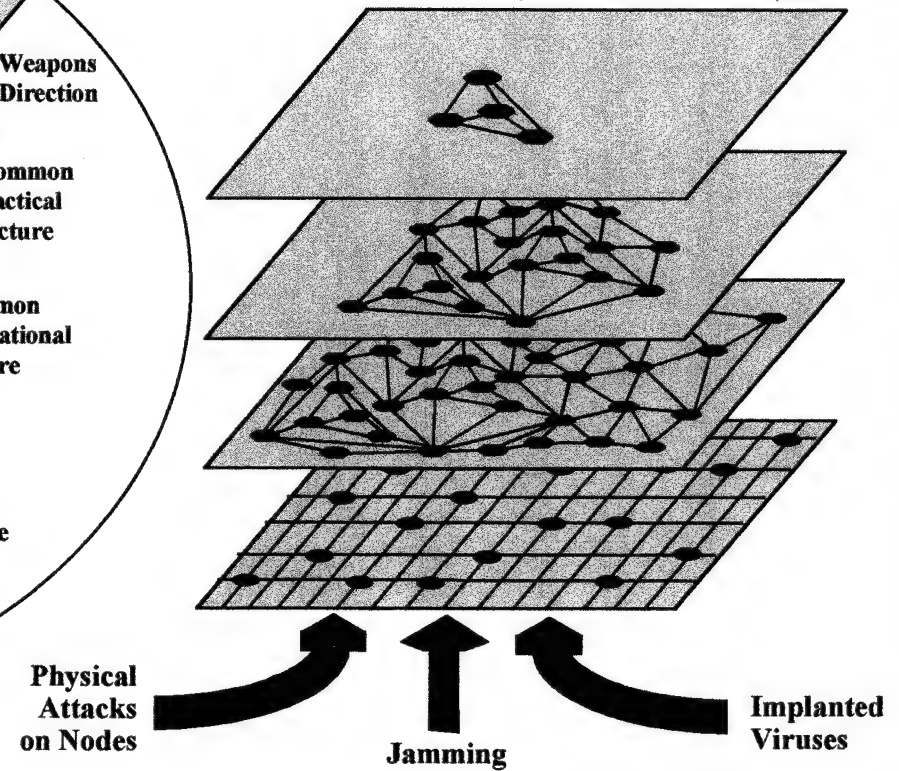
Information Warfare



Friendly Systems (IW Protect)



Enemy Systems (IW Attack)





Scope of Land Attack Targeting 2010



Missions (day, night, wx)

Strike

Air - Ground

Surface - Surface (NSFS)

SEAD

Sensors

NTM

Manned A/C

UAV's

Troops

UGS's

Launch

Platforms

Manned A/C

UCAV's

DDG's/SSN's

Weapons (to 600nm)

Unguided

Guided

INS/GPS-only

Terminal Sensor

Mapping

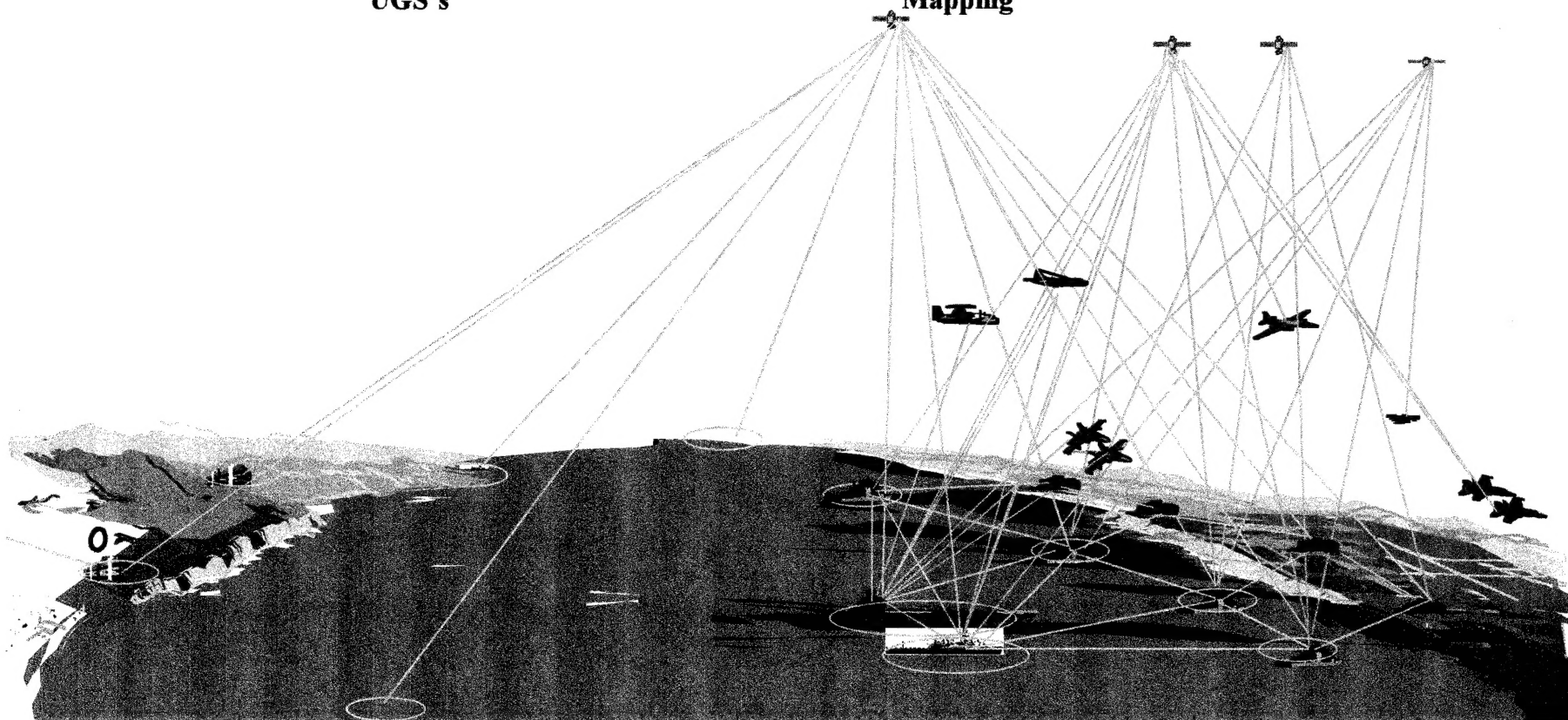
Targets

Soft, Hard, Buried, Camo'd

Fixed, Relocatable, Mobile,

Moving, TCT's

Point, Array

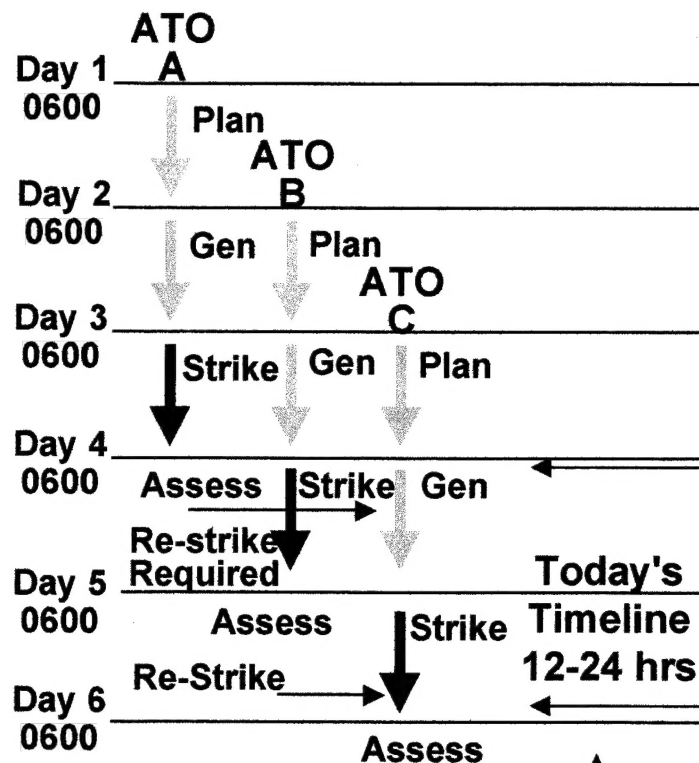




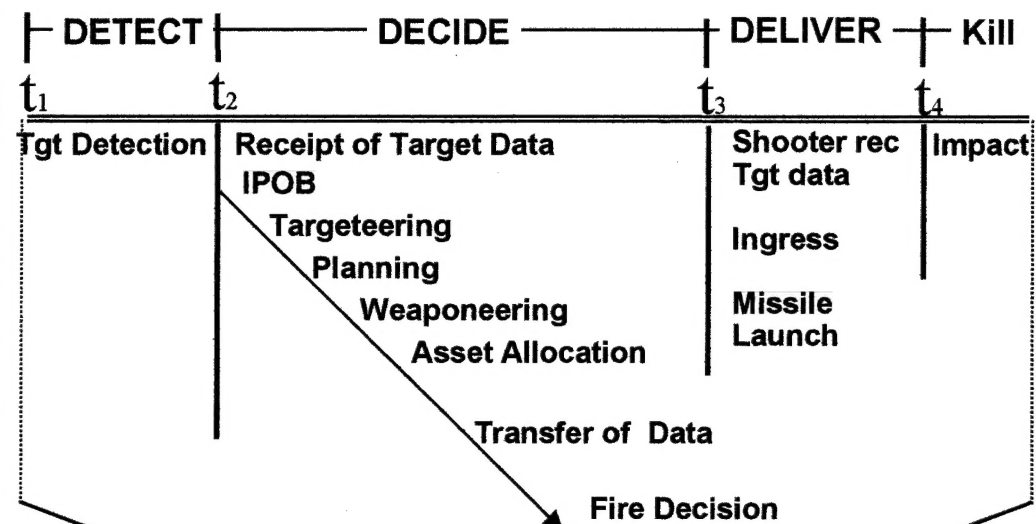
Strike Timeline



CURRENT STRIKE TIMELINE



NEED: COMPRESS "THE TIMELINE"



Today Tomorrow

Timeline Reduction Required
Biggest payoff is
Reducing t₂ to t₃

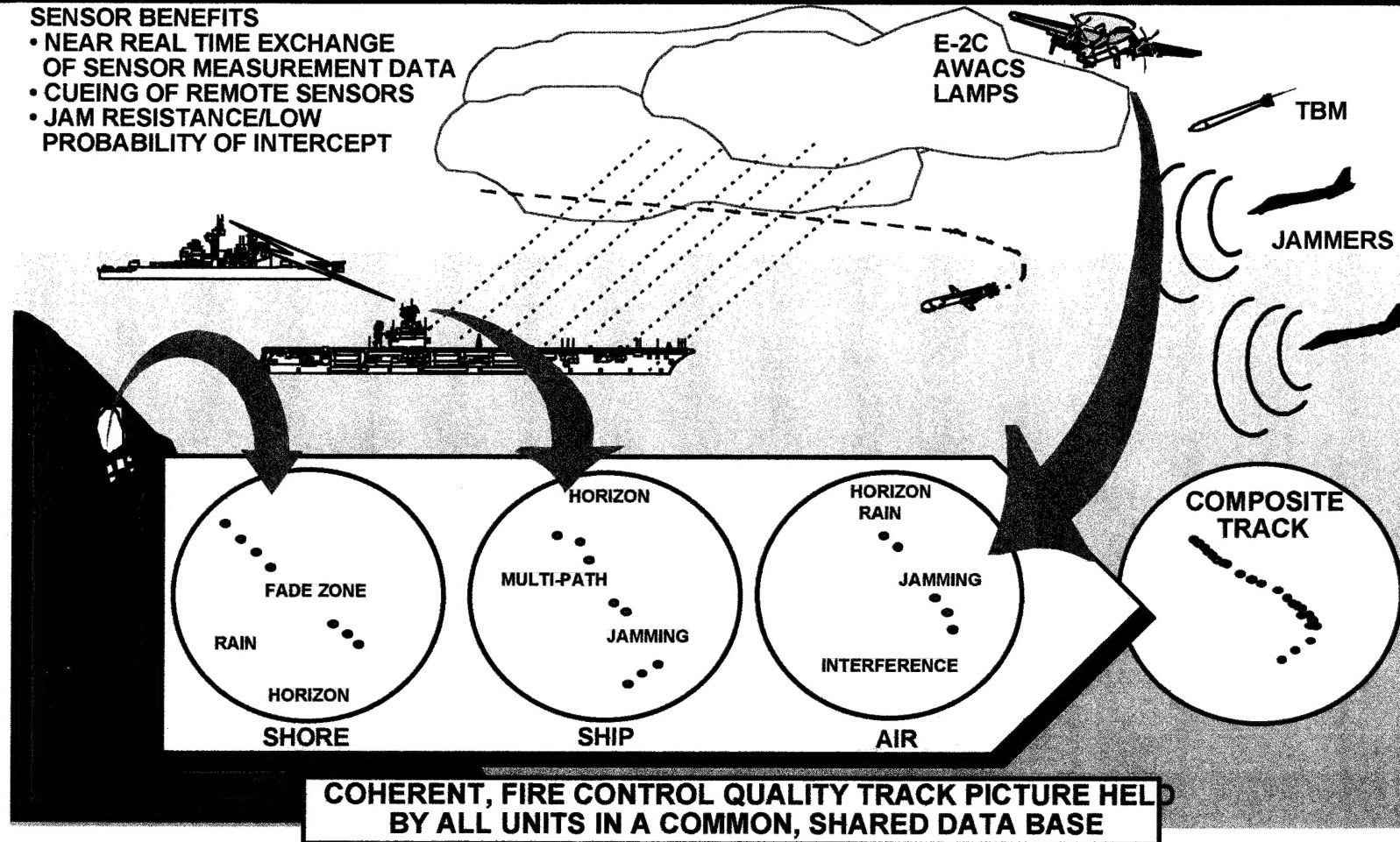


Cooperative Engagement Capability



SENSOR BENEFITS

- NEAR REAL TIME EXCHANGE OF SENSOR MEASUREMENT DATA
- CUEING OF REMOTE SENSORS
- JAM RESISTANCE/LOW PROBABILITY OF INTERCEPT





The Future: Seamless Integration

